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14  
**Figure 2** depicts the position of SEQ.I.D.NO:3 to SEQ.I.D.NO:17 relative to the rat SNS<sub>23</sub> clone.

**Figure 3** shows the localisation of human SNS<sub>23</sub> to human chromosome 3p21.

**Figure 4** shows rat multiple tissue Northern Blot probed with SNS<sub>23</sub>. Lane 1 = DRG: Lane 2 = Spinal cord: Lane 3 = Total brain: Lane 4 = Adrenal gland: Lane 5 = Heart: Lane 6 = PC12: Lane 7 = PC12 + NGF: Lane 8 = RNA markers.

**Figure 5** In situ hybridisation in rat DRG tissue using an SNS<sub>23</sub> specific probe. Figure 5a) shows a sense probe and 5b) shows an anti-sense probe.

**Figure 6** shows localisation of SNS<sub>23</sub> to human DRG

**Figure 7** Northern blot probed with SNS<sub>23</sub> using DRG tissue taken from rat pain models. Lane 1 = Control DRG: Lane 2 = DRG + 24 hours complete freunds adjuvant (CFA): Lane 3 = DRG + 24 hours sciatic nerve cut: Lane 4 = DRG + 48 hours sciatic nerve cut: Lane 5 = DRG + 7 days sciatic nerve cut.

**Figure 8** illustrates the three vectors into which rat SNS<sub>23</sub> has been cloned: pBluescript, pCI-neo and pCIN5.

**Figure 9:** shows photomicrographs of SNS<sub>23</sub> and SNS/PN3 staining for mRNA and protein. D.E. F confirm SNS<sub>23</sub> labelling is found exclusively in small neurons (10-25µm diameter). Double labelling for SNS<sub>23</sub> and SNS/PN3 mRNA and protein (G.H.I.J) shows colocalisation in small neurons (arrows); larger neurons can be seen positive for SNS/PN3 but negative for SNS<sub>23</sub> (arrowheads).

**Figure 10:** Immunoprecipitation Western blot showing specific staining in the lanes from cells transfected with SNS<sub>23</sub> DNA with the two anti-peptide antibodies designed to SNS<sub>23</sub>. Control lanes, where cells were transfected with yellow fluorescent protein (YFP) show no staining.

WO 99/47670

PCT/GB99/00838

15

**Figure 11:** shows biophysical and pharmacological properties of recombinant rat  $SNS_{\alpha}$   $Na^+$  channels expressed in HEK293T cells. Representative current records are shown along with their peak current-voltage relationships (A,B). Capacitance transients have been blanked for clarity. Pannel C illustrates the effect of TTX on  $SNS_{\alpha}$ . It is resistant to sub  $\mu M$  concentrations of TTX, compared with the nM sensitivity of TTX sensitive sodium channels.

The following examples are for illustrative purposes only and are not limiting of the invention.

**Example 1: DRG cDNA Library screening**

**Example 1a: Obtaining The Probe**

A sodium channel probe was generated to allow screening of a rat DRG cDNA library with the aim to identify novel sodium channels present in the DRG. A pan specific sodium channel probe was obtained from Polymerase chain reaction (PCR) experiments using rat genomic DNA as the template and degenerate PCR primers designed from within the 3' coding regions of the brain II, heart, skeletal muscle and glial voltage-gated sodium channel. The oligonucleotide primers used for this analysis were as follows. FORWARD PRIMER (5' CCTG/CGTCATGTTCATCTAC 3', and REVERSE PRIMER (5' CTCATAA/GGAA/GAC/TCTTGGAG/AGGG 3'). The PCR conditions used, were 94°C for 30 seconds, 50°C for 1 minute and 72°C for 2 minutes. These conditions were used for 35 cycles of PCR. The resulting PCR products were separated on a 1% agarose gel and cloned into the TA cloning kit (Invitrogen) according to manufacturers instructions. The resulting clones were taken for sequence analysis and separate clones were identified with identical sequence to the published rat brain II, heart, skeletal muscle and glial voltage-gated sodium channels.